

NEW SPECIES OF PHYTOCORIS FROM NORTH AMERICA (HEMIPTERA, MIRIDAE).¹

BY HARRY H. KNIGHT, Ames, Iowa.

Phytocoris osborni n. sp.

Runs in my key (Hemiptera Conn., 1923, p. 616) to the couplet with *pallidicornis* Reut. and *rubropictus* Knegt., but is distinguished from both species by the pale hairs on the first antennal segment and by the prominent lineate reddish lines on pronotum and hemelytra.

♂. Length 6 mm., width 2 mm. Head: width .98 mm., vertex .40 mm. Rostrum, length 3.2 mm., reaching to base of genital segment, yellowish, fourth segment blackish. Antennae: segment I, length 1.12 mm., thickness .18 mm., pale yellowish, sparsely flecked with red, clothed with numerous yellowish hairs, length of many hairs about equal to thickness of segment; II, 2.48 mm., pale, yellowish brown apically; III, 1.75 mm., yellowish brown; IV, 1.5 mm., dusky brown. Pronotum: length .87 mm., width at base 1.5 mm.

Dorsum clothed with rather prominent, simple yellowish hairs, and intermixed with very fine, more closely appressed, pale sericeous pubescence, a few fuscous hairs arising from the dark marks on pronotum. Color pale yellowish and marked with reddish lines and reticulations; two lines on frons which become obsolete on vertex but reappear on collum, mark across juga, dorsal margin of lora and of bucculae, median line of gula, two marks on xyphus, line behind lower margin of eye which continues across coxal cleft and middle of propleura, line along dorsal margin of propleura, four lines on pronotal disk of which the outer pair cross outer margin of calli, the inner pair behind the calli and broken to form four spots, two large spots each side of mesoscutum, a large spot each side on apical half of scutellum, along claval vein, a broken line of marks parallel to claval vein and dividing the area next to scutellum, along radial vein to apical area of corium where it breaks into reticulate markings, a broken line near middle of corium, reticulate marks and spots on cuneus, mark on side of sternum, spot on base of coxae, reticulate markings on femora, longitudinal line on side of venter and another on dorsal edge, red to dark red, marks on pro-

¹ Contribution from the Department of Zoology and Entomology, Iowa State College, Ames, Iowa.

notal disk and sides of venter becoming fuscous. Tibiae with apices brown; tarsi yellowish to brown, tips darker. Membrane and veins pale, apical area and more or less within areoles conspurcate with fuscous, some marks becoming obsolete. Genital characters very similar to those of *pallidicornis* Reut., but with a well defined and rather sharp tubercle above base of left clasper.

♀. Length 6.1 mm., width 2.3 mm. Head: width 1 mm., vertex .47 mm. Antennae: segment I, length 1.33 mm.; II, 2.6 mm.; III, 1.92 mm.; IV, 1.42 mm. Pronotum: length .96 mm., width at base 1.7 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂, July 2, 1897, Little Rock, Iowa (H. Osborn); Iowa State College collection. *Allotype*: taken with the type. *Paratypes*: 2 ♂, 1 ♀, taken with the types. ♂, ♀, July 7, 1897, Sioux City, Iowa (H. Osborn). KANSAS—♀, July 2, Riley County (G. A. Dean). NEBRASKA—♂, ♀, "Neb." (U. S. N. M.). The writer takes pleasure in naming this species after Prof. Herbert Osborn who collected the best material of this species and is noted for pioneer studies on the Hemiptera of Iowa.

Phytocoris nicholi n. sp.

Allied to *bipunctatus* Van D., but size larger; corium without white spot on apical field, second antennal segment with basal pale band set close to base; legs and ventral surface strongly reddish; membrane dark fuscous, sharply conspurcate with white.

♀. Length 5.3 mm., width 1.8 mm. Head: width .91 mm., vertex .49 mm.; frons and vertex strongly convex which is not true of *bipunctatus*; reddish, spot each side of apex of tylus pale, frons shaded with fuscous. Rostrum, length 2.6 mm., reaching upon fifth ventral segment, reddish, last two segments blackish. Antennae: segment I, length 1.33 mm., dark reddish, three or four pale spots on dorsal aspect, each with a pale bristle which in length about equals thickness of segment; II, 2.63 mm., dark reddish to fuscous, pale at base, a broader pale band with its basal edge beginning at middle of segment; III, 2.01 mm., black, pale at base; IV, 1.3 mm., black. Pronotum: length .81 mm., width at base 1.45 mm.

Dorsum clothed with both simple and compressed black pubescence, intermixed with white sericeous pubescence which is more abundant on mesoscutum, scutellum, clavus, and corium; the compressed black hairs most abundant on

pronotal disk. Ventral surface chiefly reddish, dorsum grayish testaceous and darkened with fuscous; pronotal disk with an undulating black line bordering the white basal edge, calli and collar reddish like the head. Scutellum fuscous, apex and a few spots pale. Hemelytra with pale background, claval vein, inner and apical margins of corium, radial vein, and embolium except for some pale spots, fuscous; cuneus fuscous, outer margin except apex pale to reddish. Membrane dark fuscous, conspurcate with white dots and reticulations, a white angulate mark on margin by tip of cuneus and a second somewhat larger one at about middle of lateral margin; veins reddish, the dividing vein fuscous. Legs dark red, femora irrorate with more or less obsolete pale dots; tibiae reddish brown, triannulate with pale, hind pair with only two broad bands, the basal one interrupted; tarsi fuscous. The hind femora are very broad for three-fourths their length which is rather unusual in the genus *Phytocoris*.

♂. Length 4.7 mm., width 1.6 mm. Head: width .89 mm., vertex .42 mm. Antennae: segment I, length 1 mm.; II, 2.37 mm.; III, 1.64 mm.; IV, 1.24 mm. Pronotum: length .78 mm., width at base 1.39 mm. Very similar to the female in pubescence and coloration. Genital characters distinctive, without tubercles above base of claspers; claspers very similar to those of *bipunctatus*, but right clasper more slender and acuminate apically.

Holotype: ♀, Sept. 9, 1925, Santa Rita Mts., alt. 4,500 ft., Arizona (A. A. Nichol); author's collection. *Allotype*: taken with the type. *Paratypes*: 3 ♂, taken with the types by Mr. Nichol. ♀, August, San Bernardino Mts., alt. 3,750 ft., Cochise Co., Arizona (F. H. Snow).

Phytocoris listi n. sp.

Suggestive of *carnosulus* Van D., but distinguished by the longer and more horizontal head, also by the first antennal segment which is not equal to width of head.

♂. Length 5.5 mm., width 1.7 mm. Head: width .95 mm., vertex .34 mm.; length .89 mm., subhorizontal, eyes prominent, protruding strongly above level of vertex; pale, lower third of tylus, genae, and more or less on basal half of juga and lora, fuscous, also with fine oblique fuscous lines on frons. Rostrum, length 2.87 mm., reaching to base of genital segment, fuscous, basal and sometimes the second segment fuscous. Antennae: segment I, length .59 mm., thickness

.11 mm., pale, base and apex and mark on middle, black, set with a few weak, pale brownish setae which in length scarcely equal thickness of segment; II, 1.9 mm., with prominent yellowish pubescence, fuscous, pale at base; III, 1.18 mm., fuscous; IV, .92 mm. fuscous. Pronotum: length .83 mm., width at base 1.42 mm.

Dorsum clothed with rather fine, partly sericeous, pale to brownish pubescence, and intermixed with sparsely set black hairs, more bristle-like on clavus, corium, and scutellum, forming a row on claval vein, also one or two rows on corium. Color pale to pale yellowish, more or less darkened with fuscous, ventral surface black, venter somewhat shining; propleura fuscous except lower margin and on coxal cleft, disk rather indistinctly spotted and marked with fuscous; scutellum black, basal angles, apex, and median line pale, the median line sometimes obscured, mesoscutum blackish. Hemelytra with fuscous spot about base of each hair, these more or less connected and irregularly shaded with light fuscous, giving an irregular maculated appearance; cuneus black, basal half pale but more or less invaded with fuscous. Membrane fuscous, the dark color resolving into numerous small, indistinct spots covering a paler background; veins fuscous, pale on apex. Legs rather slender, especially the hind femora; pale, femora with brownish black but so thickly marked with pale irrorations that the dark color is more in the form of reticulations; tibiae with four fuscous bands which are separated by broader pale annulations; tarsi fuscous. Genital characters distinctive, segment wall above base of left clasper produced somewhat into a broad flat tubercle, while only a slight tubercle is indicated on the right side; right clasper of even thickness, straight, truncated at apex but with a prominent claw on inner edge.

Holotype: ♂, June 17, 1920, Fort Collins, Colorado (Geo. M. List); author's collection. *Paratypes*: ♂, June 24, 1920, topotypic (Geo. M. List); Colorado Agricultural College collection. ♂, July 12, 1900, topotypic (E. D. Ball). ♂, July 9; 2 ♂, July 10; 2 ♂, Aug: 10, 1915, Ardmore, South Dakota (E. G. Holt); U. S. Biological Survey collection.

Phytocoris fulvipennis n. sp.

Allied to *taxodii* Kngt., but distinguished by the shorter first antennal segment which is not equal to width of head across eyes; hemelytra uniformly fulvous with a small fuscous dot on membrane margin of corium near base of cuneus.

♂. Length 3.7 mm., width 1.3 mm. Head: width .80 mm., vertex .24 mm. Rostrum, length 1.6 mm., reaching upon the fourth ventral segment. Antennae: segment I, length .67 mm.; II, 1.67 mm.; III, 1.24 mm.; IV, .77 mm.; uniformly yellowish, last segment dusky. Pronotum: length .57 mm., width at base 1.09 mm.; disk reddish to fuscous, sides yellow; disk clothed with prominent fuscous pubescence and intermixed with several small patches of silvery sericeous pubescence which produce a spotted appearance. Scutellum yellow, mesoscutum darker on middle. Hemelytra light yellow to fulvous, lateral margins more yellowish, a small fuscous dot on membrane margin of corium near base of cuneus; cuneus not differing in color from corium and embolium; clothed with golden yellow simple pubescence. Membrane uniformly pale fumate, veins pale yellowish. Ventral surface and legs yellowish; hind femora reddish on apical half, irrorate with small pale spots; tibiae uniformly pale, spines yellowish brown. Genital claspers very close to those of *taxodii* but the shorter antennal segments and shorter rostrum distinguish this species at once.

♀. Length 4.2 mm., width 1.4 mm. Head: width .77 mm., vertex .30 mm. Rostrum, length 1.7 mm., reaching upon fourth ventral segment. Antennae: segment I, length .71 mm.; II, 1.77 mm.; III, .91 mm.; IV, .74 mm. Pronotum: length .66 mm., width at base 1.24 mm. Very similar to the male in form and coloration.

Holotype: ♂, July 23, 1926, Jacksonville, Florida (E. D. Ball); author's collection. *Allotype*: same data as the type. *Paratypes*: ♂ 3 ♀, taken with the types "on Cypress" by Dr. E. D. Ball. ♂, June 28–July 2, 1912, Okefenokee Swamp, Georgia (J. C. Bradley).

Phytocoris piceicola n. sp.

Dorsal aspect suggestive of *plenus* Van D., but genital claspers indicate a closer relationship with *heidemanni* Reut. and *commissuralis* Van D.; distinguished from these latter species by the lack of black scale-like pubescence; differs from *plenus* in lacking sharp edged tubercles on the genital segment.

♂. Length 7.1 mm., width 2.2 mm. Head: width 1.09 mm., vertex .355 mm.; frons less convex than in *plenus*, with nearly obsolete transverse lines. Rostrum, length 3 mm., reaching upon sixth ventral segment, pale to brownish, apex black. Antennae: segment I, length 1.4 mm., blackish with

several white glabrous spots, each spot giving rise to a fuscous bristle which in length about equals thickness of segment, ventral surface pale from base to apex; II, 3.2 mm., fuscous, apical half black, a narrow pale band at base; III, 1.6 mm., black, narrowly pale at base; IV, 1.15 mm., black. Pronotum: length 1.03 mm., width at base 1.81 mm.; fuscous to black, collar above, calli and extending backward to include the central half of disk, yellowish, narrow basal edge of disk white; lower margin of propleura and a mark at top of coxal cleft pale, xyphus and lower margin of collar white. Scutellum reddish to dark brown, the dark color broken by irregular pale flecks and spots, median line and widening to include apex, pale.

Dorsum clothed with yellowish and fuscous simple pubescence, and intermixed on the hemelytra with white sericeous, almost scale-like pubescence which occurs more thickly on the pale spots and areas. Hemelytra fuscous to blackish, varied and marked with pale much as in *plenus*, the pale area on middle of corium is larger while that at apex of corium and on cuneus is much less conspicuous; cuneus with apical half and all of the membrane margin fuscous. Membrane much as in *plenus* but ground color more white, conspurcate with irregular fuscous marks and dots, darker within the larger areole; veins fuscous, becoming pale around apex of larger areole. Sternum and pleura black, venter fuscous, paler beneath except genital segment. Hind femora not so slender and tapering on apical half as in *plenus*; coxae white, femora fuscous, thickly irrorate with pale; tibiae chiefly pale, varied somewhat with small fuscous dots but not forming bands except on front pair where the tarsal end is black; tarsi yellowish, dark at base and apex. Genital claspers more suggestive of *heidemanni* Reut. than *plenus*, without tubercles near base although the segment wall on left side is rather swollen and thickened.

♀. Length 6.3 mm., width 2.4 mm. Head: width 1.06 mm., vertex .44 mm. Antennae: segment I, length 1.48 mm.; II, 1.75 mm.; III, 1.57 mm.; IV, 1.09 mm. Very similar to the male in pubescence but more broadly pale in color; pronotum pale yellowish, the dark color reduced to a black band along basal margin; hemelytra more pale than fuscous, the larger pale areas more or less joined.

Holotype: ♂, August 7, 1925, taken a few miles above Stone-wall, alt. 8,500 ft., near Trinidad, Colorado (H. H. Knight); author's collection. *Allotype*: taken with the type. *Paratypes*:

12 ♂, taken with the types on spruce (*Picea* sp.) by beating the branches. ♂ 2 ♀, July 27, 1917, Mt. Lemon, alt. 9,000 ft., Santa Catalina Mts., Arizona (H. H. Knight); one female is much paler than the other specimens but I am unable to place it elsewhere. 2 ♀, July 23; ♀, July 27; ♀, July 28, Williams, Arizona (H. S. Barber).

Phytocoris simulatus n. sp.

Allied to *piceicola*, having much the same aspect but size smaller and paler in color; distinguished by the shorter first antennal segment which is not equal to width of head, by the more distinctly banded tibiae and the differently formed genital claspers.

♂. Length 5.8 mm., width 1.9 mm. Head: width 1.02 mm., vertex .32 mm.; yellowish, frons flecked with red, middle of tylus, dorsal margin of lora and of bucculae, marked with red. Rostrum, length 2.8 mm., reaching upon base of genital segment, yellowish, blackish apically. Antennae: segment I, length .86 mm., yellowish to dusky brown, with several pale glabrous spots from each of which arises a dusky seta that in length about equals thickness of segment, also clothed with short black pubescence; II, 2.43 mm., yellowish brown, becoming fuscous on apex, base with a pale annulus; III, 1.16 mm., fuscous, narrowly pale at base; IV, .92 mm., fuscous. Pronotum: length .84 mm., width at base 1.48 mm.; yellowish to dusky, basal margin fuscous except the extreme edge which is pale, also dusky to fuscous on calli and lateral margins of disk, lower margin of pleura and the xyphus white. Scutellum pale, obscurely variegated with brown.

Dorsum clothed with rather stiff black pubescent hairs and intermixed with rather sparsely set, silvery white flattened pubescent hairs, especially on pronotal disk and head; also with a few flattened black hairs on hemelytra, perhaps more abundant apically on corium and clavus. Hemelytra pale yellowish to dusky, a fuscous area just before middle of corium and embolium, also more or less darkened on clavus bordering claval suture; cuneal angle of corium white but bordered just before and along apex of clavus with fuscous; cuneus pale, outer edge white, apex and two or three spots on either margin fuscous. Membrane dark fuscous, irrorate and conspurcate with pale, the largest pale area bordering apex of cuneus; larger areole and veins dusky yellow, without distinct paler irrorations. Ventral surface pale to yellowish, sternum, pleura, and genital segment chiefly fuscous.

Legs pale to yellowish, femora except base fuscous, thickly irrorate with pale spots, a few larger white areas on hind femora; tibiae triannulate with white and with fuscous, more distinct on front pair; tarsi fuscous. Genital characters closely related to *piceicola*, but distinguished by form of the right clasper which on its dorsal margin near base has a low but distinct tubercle-like projection.

♀. Length 5.3 mm., width 1.8 mm. Head: width .98 mm., vertex .41 mm. Antennae: segment I, length .89 mm.; II, 2.5 mm.; III, 1.2 mm.; IV, .99 mm. Pronotum: length .83 mm., width at base 1.48 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂ August 10, 1925, Ft. Garland, Colorado (H. H. Knight); author's collection. *Allotype*: same data as the type. *Paratypes*: 10 ♂ 5 ♀, taken with the types on *Pinus edulis* which is the host plant of the species. 2 ♂ Aug. 7, 1925, Stonewall, near Trinidad; ♀ Aug. 13, 1925, Durango, Colorado (H. H. Knight). ♀ July 12, ♂ July 21, 1915, Jemez Springs, New Mexico (J. Woodgate).

***Phytocoris mirus* n. sp.**

Related structurally to *piceicola* but having a very different color aspect; brownish red and varied with pale, first antennal segment uniformly yellowish.

♂. Length 7 mm., width 2.3 mm. Head: width 1.08 mm., vertex .34 mm. Rostrum, length 2.9 mm., reaching upon sixth ventral segment. Antennae: segment I, length 1.3 mm., yellowish, the glabrous spots slightly paler, spines yellowish; II, 3.12 mm., dusky yellow, slightly darker apically; III, 1.5 mm., fuscous, slightly paler at base; IV, 1.2 mm., fuscous. Pronotum: length 1.1 mm., width at base 1.83 mm. Dorsum clothed with yellowish to brown simple pubescence and intermixed with white sericeous, more or less scale-like pubescence, more abundant than in *piceicola*, especially on head, pronotum and scutellum. General coloration brownish red, being more reddish than brown; tip of scutellum, marks on middle and apex of corium, and base of cuneus, pale; brown to dark brown on the areas which correspond to fuscous in *piceicola*. Membrane with whitish ground color, conspurcate with irregular fuscous marks and dots, the whole having a tinge of brownish, uniformly fuscous brown within areoles, veins reddish. Legs yellowish, femora chiefly reddish, thickly irrorate with numerous small and a

few larger yellowish spots; tibiae uniformly yellowish, spines brown. Genital characters very similar to those of *piceicola* but distinguished by the broader and less sharply hooked apical half of right clasper, also the wall of genital segment at base of right clasper is not angulate.

♀. Length 6.6 mm., width 2.3 mm. Head: width 1.03 mm., vertex .44 mm. Antennae: segment I, length 1.48 mm.; II, 3.3 mm.; III, 1.74 mm.; IV, 1.2 mm. Pronotum: length .99 mm., width at base 1.77 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂ August 7, 1925, taken a few miles above Stonewall, alt. 8,500 ft., near Trinidad, Colorado (H. H. Knight); author's collection. *Allotype*: taken with the type. *Paratype*: ♂, taken with the types on spruce (*Picea* sp.). ♀ July 27, 1917, Mt. Lemon, alt. 9,000 ft., Santa Catalina Mts., Arizona (H. H. Knight). ♀ July 29, 1905, Huachuca Mts., Arizona (H. G. Barber). ♂, Manitou, Colorado (E. S. Tucker), U. S. N. M. collection.

Phytocoris tinctus n. sp.

Allied to *stellatus* Van D., but distinguished by the paler, yellow color with fulvous tint; also differs in structure of the male genital claspers.

♂. Length 5.8 mm., width 2 mm. Head: width 1.01 mm., vertex .29 mm. Rostrum, length 1.94 mm., scarcely reaching posterior margin of hind coxae. Antennae: segment I, length .69 mm., more red brown than *stellatus*; II, 2.1 mm., fuscous, narrowly pale at base; III, 1.48 mm., fuscous, narrowly pale at base; IV, .92 mm. Pronotum: length .72 mm., width at base 1.45 mm.; yellow, posterior half of disk behind calli white, with four fuscous dots on subbasal margin, setigerous fuscous points are apparent in the white area. Scutellum uniformly yellowish, without the fuscous spots found in *stellatus*.

Dorsum clothed with fuscous simple hairs, intermixed with finer yellowish pubescence and a smaller amount of white sericeous pubescence. Coloration yellowish to fulvous, more reddish on cuneus, clavus, and hind femora; posterior half of disk except laterally, irregularly on middle of corium, and inner apical angle of corium, pale to white. Cuneus pale only at inner basal angle. Membrane pale to dusky, obsoletely marked with pale fuscous dots and areas, veins fulvous. Legs yellowish, femora except base strongly red-

dish, irrorate with white dots, the hind pair with white spots arranged in transverse series; tibiae pale, irregularly dotted and marked with reddish brown to fuscous. Sternum and genital segment fuscous. Genital claspers very similar to *stellatus* but right clasper more slender and acuminate on apical half.

♀. Length 5.5 mm., width 1.7 mm. Head: width .93 mm., vertex .38 mm. Antennae: segment I, length .65 mm.; II, 1.7 mm.; III, 1.09 mm.; IV, .88 mm. Pronotum: length .74 mm., width at base 1.42 mm. Very similar to the male in pubescence and coloration. ..

Holotype: ♂ August 7, 1925, Stonewall, alt. 8,000 ft., near Trinidad, Colorado (H. H. Knight); author's collection. *Allotype*: taken with the type. *Paratypes*: 4 ♂, taken with the types on *Pinus edulis*. 2 ♀ Aug. 24, 1925, Estes Park, Colorado (H. H. Knight). ARIZONA—♂ July 27, 1917, Mt. Lemon, alt. 8,000 ft., Santa Catalina Mts. (H. H. Knight). ♂ ♀ Sept. 15, 1925, Santa Catalina Mts., Pima Co. (C. T. Vorhies), from "*Pinus*."

Phytocoris umbrosus n. sp.

Suggestive of *stellatus* Van D., but much darker and more uniformly colored; distinguished by the nearly triangular right genital clasper.

♂. Length 6 mm., width 1.9 mm. Head: width 1.08 mm., vertex .30 mm. Rostrum, length 2.34 mm., reaching upon fifth ventral segment. Antennae: segment I, length 1.03 mm., brownish black, with several white glabrous spots on dorsal aspect from which arise both pale and fuscous setae, length of spines somewhat greater than thickness of segment; II, 2.43 mm., brownish black, narrowly white at base; III, 1.18 mm., black, pale at base; IV, .98 mm., black. Pronotum: length .87 mm., width at base 1.6 mm.

Dorsum clothed with fuscous simple pubescence and intermixed with white sericeous and a much smaller amount of black sericeous pubescence, many of the sericeous hairs compressed to a scale-like form; the white basal edge of pronotum with simple white hairs. Color of a dark fuscous brown, becoming more blackish on head, pronotum and scutellum, hemelytra sometimes tinged with reddish brown but devoid of maculations except for a few white dots on edge of embolium and scutellum; a white line on median line of vertex extends upon collar, xyphus, lower margin of propleura, basal edge of pronotal disk, and coxae, white.

Femora uniformly dark fuscous brown, marked with small pale dots which are scarcely larger on hind pair; tibiae dark brownish black, front and middle pair obscurely biannulate with pale, hind pair with a pale band on basal half. Membrane clouded pale, conspurcate with irregular fuscous dots and marks, darker laterally behind cuneus than within aeroles, veins reddish. Genital claspers distinctive, right clasper subtriangular, the apical angle slightly curved and with a small claw at tip.

♀. Length 5.8 mm., width 1.95 mm. Head: width 1.05 mm., vertex .42 mm. Antennae: segment I, length 1.03 mm.; II, 2.25 mm., blackish, white at base and with an obsolete pale band at middle; III, 1.21 mm.; IV, 1.08 mm. Pronotum: length .84 mm., width at base 1.6 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂ August 7, 1925, Stonewall, alt. 8,000 ft., near Trinidad, Colorado (H. H. Knight); author's collection. *Allotype*: taken with the type. *Paratypes*: 3 ♂ 1 ♀, taken with the types on *Pinus ponderosa*. ARIZONA—♂ July 27, 1917, Mt. Lemon, alt. 9,000 ft., Santa Catalina Mts. (H. H. Knight). ♂ July 29, 1905, Huachuca Mts. (H. G. Barber). ♂ ♀ July 18, 1918, Williams (A. Wetmore). NEW MEXICO—♂ Aug. 9, ♂ Aug. 13, ♂ Aug. 15, Las Vegas (H. S. Barber).

Phytocoris comulus n. sp.

Aspect of *diversus* Kngt., but the subtriangular form of the male right genital clasper indicates a closer affinity with *umbrosus*.

♂. Length 4.9 mm., width 1.8 mm. Head: width .96 mm., vertex .37 mm. Rostrum, length 2.2 mm., reaching upon the eighth ventral segment. Antennae: segment I, length .83 mm., brownish black with several glabrous white spots, from each spot arises one or two black bristles, the length of which exceed thickness of segment; II, 2.16 mm., yellowish brown, a white band at base; III, 1.09 mm., fuscous, pale at base; IV, .92 mm., fuscous. Pronotum: length 1.09 mm., width at base 1.45 mm.

Dorsum clothed with golden yellow to brown simple pubescence, becoming fuscous on pronotum, intermixed with silvery, sericeous to scale-like hairs on head, collar, between calli, basal edge of pronotum, scutellum, more thickly on mesoscutum, inner apical angles of corium, and inner basal angle of cuneus; basal margin with six tufts of black scale-

like hairs. Color pale yellowish to brownish and tinged with fulvous; median line of head, more broadly on vertex, between calli, basal margin of pronotum, scutellum largely, inner apical angles of corium, some obsolete spots on embolium, lower half of face except for red marks, xyphus, lower margin of propleura, and coxae, pale to white. Cuneus and apical field of corium sometimes tinged with reddish. Membrane fuscous, irrorate and conspurcate with pale, or it might be described as pale and thickly marked with fuscous dots and marks; veins yellowish to dusky, sometimes fulvous. Legs pale, femora fuscous brown, the dark color irrorate with small and large white spots; tibiae pale, reddish brown apically, front pair with three rather narrow and more or less broken fuscous bands, spines brown. Genital claspers distinctive when taken in consideration with the other characters, right clasper subtriangular as in *umbrosus* but the apical angle is somewhat more slender.

♀. Length 4.8 mm., width 1.8 mm. Head: width .93 mm., vertex .43 mm. Antennae: segment I, length .90 mm.; II, 2.23 mm.; III, 1.12 mm.; IV, .89 mm. Pronotum: length .75 mm., width at base 1.39 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂ August 13, 1925, Durango, Colorado (H. H. Knight); author's collection. *Allotype*: taken with the type. *Paratypes*: 2 ♀, taken with the types on a short leaved pine which was found growing in the semi-arid valley below Durango, probably *Pinus edulis*. COLORADO—3 ♀ Aug. 10, 1925, Fort Garland (H. H. Knight), taken on *Pinus edulis*. 2 ♂ July 21, 1903, Boulder (E. P. Van Duzee). 3 ♂ 1 ♀ July 24, 1900, Salida; ♂ July 11, 1901, Fort Collins (E. D. Ball). ARIZONA—♀ Aug. 4, 1917, Williams (H. H. Knight). 2 ♂ (teneral) July 10, 1918, Williams (A. Wetmore). ♀ Oct. 27, 1914, Anderson Mesa (E. G. Holt). ♂ June 19, 2 ♂ 1 ♀ June 20, Prescott; ♀ July 23, Williams (H. S. Barber). NEW MEXICO—♂ 2 ♀ Aug. 5, 2 ♀ Aug. 13, Las Vegas (H. S. Barber). NEBRASKA—♂ ♀ August, 1903, Glen Sioux Co. (H. G. Barber).

Phytocoris cercocarpi n. sp.

Suggestive of a small *heidemanni* Reut., but the white scale-like pubescence much more abundant than the black ones; hind femora black with dorsal and posterior aspects scarcely broken by white irrorations; genital claspers distinctive.

♂. Length 6.9 mm., width 2.1 mm. Head: width 1.17 mm., vertex .38 mm. Rostrum, length 2.84 mm., reaching to base of seventh ventral segment, pale, red on side of first segment, last two segments blackish. Antennae: segment I, length 1.21 mm., black, with four or five large white spots on dorsal aspect, set with white spines only which in length exceed slightly the thickness of segment; II, 2.93 mm., black, a narrow white band at base; III, 1.54 mm., black, pale at base; IV, 1.09 mm., black. Pronotum: length .92 mm., width at base 1.64 mm.

Dorsum clothed with simple black hairs, abundantly intermixed with white and a lesser amount of black, compressed scale-like pubescence, head and collar with a few simple white hairs and white scale-like pubescence only. Color dark fuscous to black, slightly paler on middle and apex of corium but not so clearly as in *heidemanni*. Scutellum black, irregularly irrorate with pale, the median line chiefly black where in *heidemanni* it is pale. Lobe in front of coxal cleft pale except for black mark near bottom. Membrane dark fuscous, irrorate and conspurcate with pale nearly as in *heidemanni*. Coxae and bases of femora pale; hind femora rather small for the genus, black, with a few white spots on anterior and ventral aspects, dorsal aspect with only three small dots, posterior aspect with white spots showing only along ventral margin; tibiae black, front pair with three white bands while the middle pair has four, hind pair with two incomplete white annuli near base; tarsi black. Genital claspers very distinctive, left clasper near middle with a finger-like process which appears drawn down and in contact with the slightly enlarged base (this condition is suggestive of an injured or teneral specimen but the structure is identical in all the males of the series); right clasper rather large, being very similar to that figured for *uniformis* Kngt., but the apex curved in above base of left clasper and nearly touching the angulate wall of the genital segment.

♀. Length 6.5 mm., width 2.3 mm. Head: width 1.09 mm., vertex .50 mm. Antennae: segment I, length 1.36 mm.; III, 1.55 mm.; IV, 1.09 mm. Pronotum: length .98 mm., width at base 1.83 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂ August 7, 1925, Stonewall, alt. 8,000 ft., near Trinidad, Colorado (H. H. Knight); author's collection. *Allotype*: taken with the type. *Paratypes*: 11 ♂ 6 ♀, taken with the types on mountain mahogany (*Cercocarpus parvifolius*) which

appeared to be the only plant on which the species occurred. ♂ August, 1921, El Paso County, Colorado (Grace O. Wiley).

Phytocoris apache n. sp.

Large size suggestive of *heidemanni* Reut., but distinguished by the biannulate second antennal segment, more decidedly grayish color, without the oblique blackish mark on apical field of corium, and by structure of the male genital characters.

♂. Length 8.6 mm., width 2.6 mm. Head: width 1.27 mm., vertex .56 mm.; pale to grayish, transverse band on middle of tylus, basal angles of tylus and extending somewhat on frons, lower margins of juga and lora, spot on middle of the strongly projecting lora, several fine oblique lines on frons, reddish brown to blackish. Rostrum, length 3.5 mm., extending upon base of fifth ventral segment. Antennae: segment I, length 2.16 mm., brown black, irrorate with small and three or four larger white spots, spines pale, in length about equal to thickness of segment; II, 3.43 mm., black, biannulate with pale, first band slightly removed from base, somewhat interrupted on ventral aspect, leaving a black annulus at base which about equals the width of the pale band, second pale annulus set at a point slightly beyond middle of segment; III, 2.13 mm., black, pale at base; IV, 1.39 mm., black. Pronotum: length 1.25 mm., width at base 2.2 mm.; basal margin slightly depressed just before basal angles.

Dorsum clothed with rather short black simple pubescence and intermixed with finer but more abundant pale sericeous pubescence, a few compressed black hairs on apical area of corium. General coloration pale testaceous to grayish and shading to fuscous on darker areas; sides of pronotum and lateral margins of disk blackish, also darker along basal margin except the white edge, a pair of tuberculate spots each side of middle on subbasal margin densely clothed with black hairs; scutellum and mesoscutum blackish, median line slenderly pale and covered with white pubescence, apical area more broadly pale each side of the dark mesal area which supports the slender and sometimes obsolete pale median line. Hemelytra shaded with fuscous on clavus and inner apical area of corium, but without an oblique fuscous mark such as occurs in *heidemanni*, claval and radial veins outlined with fuscous but interrupted in spots; cuneus with numerous small fuscous spots, the apex and inner margin more or less blackish. Membrane whitish and thickly conspurcate with fus-

cous much as in *heidemanni*, but the larger areole more pale than fuscous, veins fuscous, becoming white around apical half of areoles. Legs blackish and marked with pale, all femora with a rather distinct line on both anterior and posterior aspects, hind femora black on dorsal aspect and with only three or four pale marks; tibiae triannulate with pale but more or less interrupted by fuscous dots; tarsi dark fuscous. Ventral aspect chiefly fuscous, xyphus, lower margin of propleura, and mark across top of coxal cleft which continues upon head behind eye, pale; venter with numerous pale irrorations but sides and genital segment chiefly blackish. Genital characters distinctive, a rather large erect tubercle on segment wall above and far forward from base of left clasper, right side with a low wart-like tubercle in the same relative position; claspers rather simple in design, left clasper moderately thick at base and tapering gradually as it curves around apex of genital opening, right clasper linear or somewhat wedge-shaped, ventral edge margined, apex slightly hooked where it touches left clasper.

♀. Brachypterous, length 7.3 mm., width 2.6 mm. Head: width 1.32 mm., vertex .65 mm. Antennae: segment I, length 2.22 mm.; II, 3.5 mm.; III, 2.28 mm.; IV, broken. Pronotum: length .90 mm., width at base 1.63 mm. Hemelytra abbreviated, scarcely reaching upon seventh abdominal segment; cuneus rounded, with only a vestige of the membrane present on inner margin. Pubescence and coloration very similar to the male.

Holotype: ♂ June 24, 1925, Williams, Arizona, alt. 7,000 ft. (A. A. Nichol); author's collection. *Allotype*: ♀ June 19, Prescott, Arizona (H. S. Barber); U. S. National Museum collection. *Paratypes*: ♂, taken with the type. 4♂ 2♀, May 31 to June 7, Williams, Arizona (Barber & Schwarz). ♂ ♀ June 19, Prescott, Arizona (H. S. Barber). ♂ May 13, Silver City, New Mexico (J. B. Wallis).

Phytocoris hopi n. sp.

Allied to *apache* but form smaller and more slender; distinguished by the pale median line on pronotum and in structure of the male genital characters.

♂. Length 7 mm., width 1.75 mm. Head: width 1 mm., vertex .47 mm.; differs from *apache* in the V-shaped black mark on base of tylus, also tip of tylus black and more or less confluent with the band on middle. Rostrum, length

3.34 mm., reaching to base of fifth ventral segment, black, first segment pale, second segment pale to fuscous. Antennae: segment I, length 1.86 mm., black, with a few small pale spots, spines pale, length not equal to thickness of segment; II, 3.23 mm., brownish black, biannulate with pale nearly as in *apache*; III, 2.31 mm., black, pale at base; IV, 1.7 mm., black. Pronotum: length .98 mm., width at base 1.54 mm.; lateral margins of disk moderately concave; median line pale and set off with fuscous, disk fuscous with calli and a rather broad ray behind each paler, basal edge pale. Scutellum nearly as in *apache* but not so strongly convex.

Dorsum clothed with short black and white pubescence nearly as in *apache*. Hemelytra with more fuscous than in *apache*, leaving a pale area on middle and one at apex, being more or less connected by pale along outer edge of radial vein; also paler on clavus bordering scutellum and the commissure. Cuneus blackish, basal half more or less pale but with fuscous spots. Membrane dark fuscous, conspurcate and irrorate with pale, veins dusky yellow, black between the areoles. Legs nearly as in *apache* but the tibiae more distinctly triannulate with pale. Genital characters distinctive, segment wall with a small tubercle above base of left clasper which points posteriorly; left clasper much as in *apache*, but right clasper more triangular, the distal angle more slender and acuminate; a smaller tubercle above base of right clasper but of the same form and directed posteriorly as on the left side.

♀. Brachypterous, length 6 mm., width 2 mm. Head: width 1 mm., vertex .53 mm. Antennae: segment I, length 2.16 mm.; II, 3.65 mm.; III, 2.54 mm.; IV, 1.75 mm. Pronotum: length .84 mm., width at base 1.21 mm. Hemelytra abbreviated, scarcely extending beyond sixth abdominal segment; cuneus rounded, with only a vestige of the membrane present on inner margin. Pubescence and coloration very similar to that of the male.

Holotype: ♂ August 15, 1925, Dolores, Colorado (H. H. Knight); author's collection. *Allotype*: taken with the type. *Paratypes*: COLORADO—2 ♂ 2 ♀ Aug. 2-3, 1900, Dolores (E. D. Ball). ♀ Aug. 12, 1925, Pagosa Springs (H. H. Knight). 2 ♂ 1 ♀ Aug. 27, 1924, Estes Park (Drake & Hottes). ♂ Aug., 1885, Durango. ♂ Aug., 1885, Manitou. ♂, June, Platte Canyon (Osler). ARIZONA—♀ Aug. 4, 1917, Williams (H. H.

Knight). ♀ Sept. 26, 1925, Santa Rita Mts. (A. A. Nichol).
NEW MEXICO—♀ July 21, 1915, Jemez Springs (J. Woodgate).
♂ Aug. 4, Rio Ruidoso, alt. 6,500 ft., White Mts. (Townsend).

***Phytocoris hesperius* n. sp.**

Allied to *vittatus* Reut., but distinguished by the shorter first antennal segment which is about equal to three-fourths the width of pronotum at base. In *vittatus* (type female) segment I (1.73 mm.) is almost equal to width of pronotum at base (1.77 mm.).

♂. Length 7.5 mm., width 2.4 mm. Head: width 1.08 mm., vertex .43 mm. Rostrum, length 3.15 mm., reaching upon seventh ventral segment. Antennae: segment I, length 1.5 mm., blackish, with several large and more or less confluent white spots on dorsal aspect, length of white setae greater than thickness of segment; II, 3.05 mm., fuscous, slightly paler on dorsal aspect, an obsolete pale band at slightly beyond middle, white at base but interrupted by fuscous beneath; III, 1.6 mm., fuscous, pale at base; IV, 1.03 mm., fuscous. Pronotum: length 1.06 mm., width at base 1.95 mm.

Dorsum clothed with both pale and fuscous simple pubescence, abundantly intermixed with both black and white, compressed scale-like pubescence. Coloration nearly as in *vittatus* but inner half of corium nearly uniformly fuscous without a distinct vittate mark; also with a fuscous median line on pronotal disk except between calli; scutellum more broadly pale, apex and part of median line pale with a dark ovate spot on apex surrounded by pale. Membrane with dark fuscous, thickly conspurcate with pale spots and reticulations, the largest pale spot on margin near tip of cuneus. Right genital clasper slightly curved, truncate at apex but with a small claw at middle of inner edge of apex. The claspers of this species and *vittatus* indicate a close relationship with *palmeri* Reut.

♀. Length 6.4 mm., width 2 mm. Head: width .99 mm., vertex .46 mm. Antennae: segment I, length 1.36 mm.; II, 2.93 mm.; III, 1.63 mm.; IV, .99 mm. Pronotum: length .92 mm., width at base 1.7 mm. Very similar to the male in pubescence and coloration but the vittate mark on corium is here quite distinct as in *vittatus*; yet the antennal characters distinguish the species.

Holotype: ♂ August 7, 1925, Stonewall, alt. 8,500 ft., near Trinidad, Colorado (H. H. Knight); author's collection. *Allo-*

type: June 1, 1926, Chiricahua Mts., alt. 6,000 ft., Arizona (A. A. Nichol). *Paratypes*: COLORADO—♂, taken with the type on mountain mahogany (*Cercocarpus parvifolius*). ♂ Aug. 13, 1925, Durango (H. H. Knight). ♂ July 14, 1898, Happy Hollow; ♀ June 22, 1899, Fort Collins (E. D. Ball). ARIZONA—3 ♂ 3 ♀, taken with the allotype on *Cowania* sp., the teneral condition of the specimens indicating they were reared on that plant; these specimens are smaller than the Colorado types, the dark color more strongly contrasted on a paler ground but otherwise they appear to be identical. ♀ June 7, 1926, Tucson; ♂ Sept. 26, 1925, Santa Rita Mts.; ♂ July 5, 1926, Rincon Mts., alt. 8,000 ft. (A. A. Nichol). 2 ♂ 1 ♀ Aug. 2, 1917, at top of Bright Angel trail, Grand Canyon (H. H. Knight). ♂ July 8, 1918, Williams (A. Wetmore). ♀ July 26, Williams (H. S. Barber). ♀ July 8, ♀ July 28, Huachuca Mts. (H. G. Barber). ♀ June 3, ♀ June 6, Chiricahua Mts. (H. G. Hubbard). NEW MEXICO—♂ Aug. 8, Las Vegas (H. S. Barber). WYOMING—♂ July 20-25, 1920, Yellowstone National Park (A. A. Nichol). OREGON—♂ ♀ Aug. 17, 1920, Portland (A. A. Nichol).

Phytocoris fuscognatus n. sp.

Allied to *cunealis* Van D., but larger, more yellowish without red; distinguished by the sparsely dotted membrane, fuscous mark across corium, and the dusky yellow hind femora.

♀. Length 8.3 mm., width 2.8 mm. Head: width 1.15 mm., vertex .56 mm.; yellow, almost orange yellow above, eyes yellowish brown. Rostrum (imbedded), reaching somewhat beyond hind coxae. Antennae: segment I, length 2.07 mm., thickly clothed with erect long pale hairs, length of many greater than twice the thickness of segment; II, 3.7 mm., set with a few long dusky hairs on basal third; III, 2.01 mm.; IV, 1.33 mm.; uniformly pale, last two segments becoming dusky. Pronotum: length 1.3 mm., width at base 2.07 mm.; sides pale, disk pale to dusky, calli and between yellowish. Scutellum yellowish, mesoscutum darker. Dorsum clothed with yellowish to brown simple pubescence, a few fuscous hairs on pronotum and around the fuscous marks on corium; intermixed with shorter, more recumbent golden yellow hairs which, on the pronotum, mesoscutum and about the fuscous marks on middle of corium, are replaced by white sericeous pubescence. Hemelytra pale yellowish, the pigment more opaque on apical half; corium with

an oblique fuscous mark across middle, but more or less invaded and broken by pale marks and dots, the dark area represented on apex of clavus by small fuscous spots only. Cuneus yellowish, apical two-thirds tinged with reddish; a black dot bearing black bristles is present on margin of corium bordering membrane. Membrane white, finely dotted with small fuscous marks, more thickly on basal half and on apex; a fuscous cloud is apparent on lateral margin behind cuneus; veins yellowish to reddish. Legs pale, hind femora dusky, with obsolete yellowish dots apparent, clothed with prominent pale to fuscous hairs; hind tibia with dusky band near base. Ventral surface rather uniformly pale to yellowish.

Holotype: ♀ June 26, 1926, Corvallis, Oregon (C. J. Drake); author's collection.